UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/778,764	02/08/2001	Bart Joseph Gerard Pauwels	Q62997	4162

7590 07/25/2006

SUGHRUE, MION, ZINN, MACPEAK & SEAS, PLLC
2100 Pennsylvania Avenue, N.W.
Washington, DC 20037-3213

EXAMINER	
RYMAN, DANIEL J	

ART UNIT	PAPER NUMBER
2616	

DATE MAILED: 07/25/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/778,764	PAUWELS, BART JOSEPH GERARD	
	Examiner	Art Unit	
	Daniel J. Ryman	2616	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *06 June 2006*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1,3-6,8-16 and 18-24* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☒ Claim(s) *5* is/are allowed.

6)☒ Claim(s) *1,3,4,6,8,10-16 and 19-24* is/are rejected.

7)☒ Claim(s) *1,5,9,16 and 18* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Response to Arguments

1. Examiner acknowledges Applicant's filing of an RCE on 6/6/2006.

2. Applicant's arguments with respect to claims 6, 8, 10-16, and 19-23 have been considered but are moot in view of the new ground(s) of rejection.

3. Applicant's arguments with respect to claims 5, 9, and 18 have been considered but are moot in view of the indication of allowability.

4. Applicant's arguments filed 6/6/2006, referring to the arguments filed 3/6/2006, have been fully considered but they are not persuasive, regarding claims 1, 3, 4, and 24. Applicant asserts that Calvignac discloses adding reassembly indicators, such that Calvignac fails to disclose that the "reassembly indicator [is] incorporated into said control data in such a way as to not increase the amount of said control data already present in said data traffic" as required by the claims. Examiner, respectfully, disagrees. Calvignac discloses that certain switches will receive packets from trunks that support the preempt/resume protocols (col. 9, lines 8-11). Calvignac further discloses that on trunks that support the preempt/resume protocols, "each packet is transmitted along with at least a 1-byte trailer" (col. 5, lines 34-38). In addition, Calvignac uses the 1-byte trailer for reassembling the data traffic upon receipt (col. 7, lines 14-20). Thus, since each packet includes a Trailer Byte and since the Trailer Byte is used for reassembly, Examiner maintains that Calvignac discloses incorporating the reassembly indicator into the control data in such a way as to not increase the amount of control data already present in said data traffic.

5. Given the foregoing, Examiner maintains that claims 1, 3, 4, and 24 are either anticipated or rendered obvious by Cavignac.

Claim Objections

6. Claim 1 is objected to because of the following informalities: in line 13, "step (b) comprises" should be "step (b) further comprises" since earlier in claim 1, it already has been recited that step (b) comprises certain steps. Appropriate correction is required.

7. Claim 5 is objected to because of the following informalities: in line 9, "after the minimum" should be "after a minimum" since "the minimum transmittable element" lacks antecedent basis; in line 18, "(d) if the memory stack" should be "(d) if a memory stack" since "the memory stack" lacks antecedent basis; in line 19, "the queue" should be "the memory stack" since the memory stack contains the output queues; and, in line 20, "the traffic stream" should be "the currently received traffic stream" since "the traffic stream" has two antecedents: "the new traffic stream" and "the currently received traffic stream". Appropriate correction is required.

8. Claim 16 is objected to because of the following informalities: in line 14, "the new interleaved" should be "the another new interleaved" since "the new interleaved portion" has two antecedents: "the new interleaved portion" of the second traffic stream and "the new interleaved portion" of the another new interleaved" traffic stream, and, in line 15, "further output queue" should be "third output queue" since Applicant has amended the claim to include a first and second output queues. Appropriate correction is required.

Claim Rejections - 35 USC § 102

9. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

10. Claims 1, 6, 8, 10-13, and 23 are rejected under 35 U.S.C. 102(b) as being anticipated by Calvignac et al. (USPN 5,557,608), of record.

11. Regarding claim 1, Calvignac discloses a method of transmitting data traffic received from a plurality of prioritized sources (col. 3, lines 29-40, where the traffic is classified into different delay priorities), wherein the method comprises: (a) setting the highest priority source with data traffic waiting for transmission as current transmission source (col. 4, lines 4-10, where a lower priority class is served only if the higher priority class buffer is empty); (b) transmitting the data traffic from the current transmission source until completion while monitoring the remaining sources for waiting data traffic, wherein if traffic is detected from a source with a higher priority than the current transmission source, completing transmission of the minimum transmittable element (see "data block" in col. 5, lines 27-33) from the current transmission source prior to starting transmission of data traffic from the source with higher priority (col. 4, lines 4-10, where a low priority packet is interrupted when a high priority packet arrives before the end of service); (c) upon completion of the transmission of data traffic from the current transmission source, going to step (a) (col. 4, lines 4-10, where the service of the low-priority packet is resumed after the high-priority packet has been served); wherein the data traffic as received from said plurality of prioritized sources includes control data (1-byte trailer) (where "on trunks that support preempt/resume protocol, each packet is transmitted along with at least a 1-byte trailer," col. 5, lines 34-38, and where a receiver in the system includes a switch used to route packets to other trunks for transmission to other nodes in the packet network, see col. 9,

lines 8-11, such that Calvignac discloses receiving prioritized data traffic over a trunk that supports preempt/resume protocol with each data packet including a 1-byte trailer), and step (b) comprises incorporating into said control data, where not already present, at least one reassembly indicator for use in reassembling the data traffic upon receipt (col. 7, lines 14-20, where the Trailer Byte is used for reassembling the data traffic upon receipt), said reassembly indicator being incorporated into said control data in such a way as to not increase the amount of said control data already present in said data traffic (col. 5, lines 34-38, where each packet includes a Trailer Byte and where the Trailer Byte is used for reassembly, such that including a reassembly indicator in a particular packet would not increase the amount of control data already present in said data traffic; see also Figs. 6-10 and col. 6, line 50-col. 7, line 7 which disclose how the Trailer Byte is used).

12. Regarding claim 6, Calvignac discloses a switch (col. 3, lines 13-22) comprising a plurality of memory devices (buffers) defining queues for receiving traffic to be switched, wherein each queue is associated with a predetermined priority classification (col. 4, lines 4-10, where each priority class has a buffer associated with it), and a processor for controlling the transmission of traffic from the queues to an output (col. 3, lines 42-50, where the scheduler, i.e. a "processor," schedules the packets for transmission), wherein the processor monitors the queues to determine whether traffic has arrived at a queue having a higher priority classification than the queue from which traffic is currently being transmitted (col. 4, lines 4-10, where a low priority packet is interrupted when a high priority packet arrives before the end of service), and if traffic arrives in a queue that has a higher priority than the queue from which traffic is currently being transmitted, the processor suspends the current transmission after transmission of the

minimum transmittable element (see "data block" in col. 5, lines 27-33) from the lower priority queue and transmits traffic from the higher priority queue (col. 4, lines 4-10, where a low priority packet is interrupted when a high priority packet arrives before the end of service), and subsequently resumes the suspended transmission after completing transmission of the higher priority traffic (col. 4, lines 4-10, where the service of the low-priority packet is resumed after the high-priority packet has been served), wherein the traffic received by said memory devices includes control data (1-byte trailer) (where "on trunks that support preempt/resume protocol, each packet is transmitted along with at least a 1-byte trailer," col. 5, lines 34-38, and where a receiver in the system includes a switch used to route packets to other trunks for transmission to other nodes in the packet network, see col. 9, lines 8-11, such that Calvignac discloses receiving prioritized data traffic over a trunk that supports preempt/resume protocol with each data packet including a 1-byte trailer) and, prior to transmission, the processor adapts said control data without increasing the amount of said control data (col. 5, lines 34-38, where each packet includes a Trailer Byte and where the Trailer Byte is used for reassembly, such that including a reassembly indicator in a particular packet would not increase the amount of control data already present in said data traffic; see also Figs. 6-10 and col. 6, line 50-col. 7, line 7 which disclose how the Trailer Byte is used) to comprise, where not already present, at least one reassembly indicator for use in reassembling the traffic upon receipt (col. 7, lines 14-20, where the Trailer Byte is used for reassembling the data traffic upon receipt).

13. Regarding claim 8, Calvignac discloses that the reassembly indicators comprise different start ('7E' flag, see col. 4, lines 15-16) and end indicators (trailer, col. 5, lines 34-38) for each cell or packet in the traffic.

14. Regarding claim 10, Calvignac discloses that the reassembly indicators indicate the queue's priority classification (col. 5, line 65-col. 6, line 9, where Bit B5 of the trailer byte indicates a packet's priority classification).

15. Regarding claim 11, Calvignac discloses that the processor adapts each packet or cell in the traffic received from the queues to include an indication of the queue's priority classification (col. 5, line 65-col. 6, line 9, where Bit B5 of the trailer byte indicates a packet's priority classification).

16. Regarding claim 12, Calvignac implicitly discloses that the processor stores predetermined details of interrupted traffic transmissions and their respective queues in one of the memory devices and retrieves the details for use in resuming the interrupted transmission once the interrupting transmission is completed (col. 4, lines 4-10, where in order to resume transmission, the system must know where it left off).

17. Regarding claim 13, Calvignac discloses a number of outputs, wherein the processor transmits traffic to an appropriate output depending upon the traffic's destination address (col. 3, lines 13-27, where "incoming data packets are selectively routed to one or more of the outgoing communication links" based on "information in the header of the data packet" in order to "move [the packet] closer to its destination").

18. Regarding claim 23, Calvignac discloses a telecommunications network comprising the switch (col. 3, lines 13-22).

19. Claim 16 is rejected under 35 U.S.C. 102(b) as being anticipated by Ellis et al. (USPN 5,497,371), previously cited as pertinent prior art.

20. Regarding claim 16, Ellis discloses a switch (col. 4, lines 22-29) comprising an input from which a data stream is received (Fig. 2 and col. 4, line 66-col. 5, line 1, where a destination card receives the data stream), the data stream comprising interleaved portions of different traffic streams (col. 4, lines 55-65, where the data stream comprises portions of low-priority packets, high-priority packets, and portions of interrupted low-priority packets, i.e. fragmented low-priority packets), a number of output queues (Fig. 2 and col. 5, lines 1-3, where the receiver contains queues 46 and 48) and a processor configured to separate the data stream into respective ones of the output queues for reassembly of individual traffic streams from the data stream (Fig. 2 and col. 4, line 66-col. 5, line 7, where the protocol checker, i.e. a "processor," separates the data stream into respective ones of the output queues), wherein the processor monitors the data stream while routing a first traffic stream to a first output queue until the processor detects a start indicator of a new interleaved portion of a second traffic stream (Fig. 2 and col. 4, line 66-col. 5, line 7, where the protocol checker directs the data streams to their respective buffers based on the priority and sequence numbers of the packets, i.e. "start indicators," see also col. 6, lines 60-64), wherein the processor routes the new interleaved portion of said second traffic stream to a second output queue until the end of the new interleaved portion of the second traffic stream is determined (Fig. 2 and col. 4, line 66-col. 5, line 7, where the protocol checker routes high priority packets to their respective buffer until it is determined the high priority packets have ended), thereafter the processor routes the first data stream to the first output queue (Fig. 2 and col. 4, line 66-col. 5, line 7, where the protocol checker sends the low-priority packets to their buffer for reassembly), or until another start indicator of another new interleaved portion of a traffic stream is detected within the data stream (col. 3, lines 54-63, where a high priority packet

can interrupt a low-priority packet at any time by fragmenting the low-priority packet into one or more fragments, such that multiple interrupts can occur for a single low-priority packet), wherein the processor routes the new interleaved portion to a further output queue (col. 3, lines 34-41, where the switch is contemplated as having two or more priorities of traffic, and thus, two or more buffers and queues for the traffic, such that the protocol adapter would route a different output stream to a further queue, as outlined in col. 5, lines 1-7, when the system has three or more priorities), wherein said start and end of said interleaved portions of said traffic streams are determined from at least one reassembly indicator incorporated into control data contained within said interleaved portions of traffic streams in such a way as to not increase the amount of control data above the amount already included in said traffic streams prior to interleaving (col. 5, lines 26-40, where the priority bits, the sequence bits, and the completion/continuation bits, i.e. the reassembly indicator, are included in each packet as part of the protocol, such that these bits do not increase the amount of control data above the amount already included in the traffic streams prior to interleaving).

Claim Rejections - 35 USC § 103

21. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

22. Claims 3, 4, 14, 15, and 24 are rejected under 35 U.S.C. 103(a) as being unpatentable over Calvignac et al. (USPN 5,557,608), of record.

23. Regarding claims 3 and 14, Calvignac does not expressly disclose that the minimum transmittable element for traffic of asynchronous and bit-synchronous protocols is a bit. However, Calvignac does disclose that the minimum transmittable element is the size of a block (col. 5, lines 20-33). It is generally considered to be within the ordinary skill in the art to adjust, vary, select, or optimize the numerical parameters or values of any system absent a showing of criticality in a particular recited value. The burden of showing criticality is on applicant. In re Mason, 87 F.2d 370, 32 USPQ 242 (CCPA 1937); Marconi Wireless Telegraph Co. v. U.S., 320 U.S. 1, 57 USPQ 471 (1943); In re Schneider, 148 F.2d 108, 65 USPQ 129 (CCPA 1945); In re Aller, 220 F.2d 454, 105 USPQ 233 (CCPA 1055); In re Saether, 492 F.2d 849, 181 USPQ 36 (CCPA 1974); In re Antonie, 559 F.2d 618, 195 USPQ 6 (CCPA 1977); In re Boesch, 617 F.2d 272, 205 USPQ 215 (CCPA 1980). Since Calvignac discloses that the minimum transmittable element is a certain size, it would have been obvious to one of ordinary skill in the art to vary the size to be any size, including one bit, absent a showing of criticality by Applicant.

24. Regarding claims 4 and 15, Calvignac does not expressly disclose that the minimum transmittable element for traffic of slot-synchronous protocols is a slot. However, Calvignac does disclose that the minimum transmittable element is the size of a block (col. 5, lines 20-33). It is generally considered to be within the ordinary skill in the art to adjust, vary, select, or optimize the numerical parameters or values of any system absent a showing of criticality in a particular recited value. The burden of showing criticality is on applicant. In re Mason, 87 F.2d 370, 32 USPQ 242 (CCPA 1937); Marconi Wireless Telegraph Co. v. U.S., 320 U.S. 1, 57 USPQ 471 (1943); In re Schneider, 148 F.2d 108, 65 USPQ 129 (CCPA 1945); In re Aller, 220 F.2d 454, 105 USPQ 233 (CCPA 1055); In re Saether, 492 F.2d 849, 181 USPQ 36 (CCPA 1974); In re

Antonie, 559 F.2d 618, 195 USPQ 6 (CCPA 1977); In re Boesch, 617 F.2d 272, 205 USPQ 215 (CCPA 1980). Since Calvignac discloses that the minimum transmittable element is a certain size, it would have been obvious to one of ordinary skill in the art to vary the size to be any size, including one slot, absent a showing of criticality by Applicant.

25. Regarding claim 24, Calvignac does not expressly disclose that the method is implemented using a computer program product comprising a number of computer executable instructions. Examiner takes official notice that it is well known in the art to implement a method using software since software is more flexible than hardware. It would have been obvious to one of ordinary skill in the art at the time of the invention to implement the method using software since software is more flexible than hardware.

26. Claims 19-22 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ellis et al. (USPN 5,497,371), previously cited as pertinent prior art.

27. Regarding claim 19, Ellis does not expressly disclose that the end of an interleaved portion of traffic is determined from end indicator within the data stream. However, Ellis discloses that the protocol checker sends packets to their respective buffers (col. 5, lines 1-3), where this implies that the system determines the start and end of packets. In addition, Ellis discloses that the packets end with a CRC field (Fig. 3) where this field clearly distinguishes one packet from another. Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to determine the end of an interleaved portion of traffic from an end indicator within the data stream since this will clearly signify the end of a packet.

28. Regarding claim 20, Ellis discloses that each interleaved portion of traffic comprises a priority indicator (col. 5, lines 26-31). Ellis does not expressly disclose the end of an interleaved

portion of traffic is determined from a drop in level of the priority indicator. However, Ellis does disclose that the protocol checker determines the start and end of a packet by monitoring the priority and sequence numbers of the packets (col. 5, lines 1-3, where in order for the protocol checker to direct packets to the correct buffer, the monitor must be able to distinguish between the start and end of the packets). Ellis also discloses that the protocol checker looks for, inter alia, a change in the priority bits (col. 6, lines 60-64). Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to determine the end of an interleaved portion of traffic from a drop in the level of the priority indicator because a drop in the level of priority signifies a new packet.

29. Regarding claim 21, Ellis discloses that each interleaved portion of traffic comprises a priority indicator (col. 5, lines 26-31). Ellis does not expressly disclose that a start indicator comprises a rise in the level of the priority indicator. However, Ellis does disclose that the protocol checker determines the start and end of a packet by monitoring the priority and sequence numbers of the packets (col. 5, lines 1-3, where in order for the protocol checker to direct packets to the correct buffer, the monitor must be able to distinguish between the start and end of the packets). Ellis also discloses that the protocol checker looks for, inter alia, a change in the priority bits (col. 6, lines 60-64). Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to have a start indicator comprise a rise in the level of the priority indicator because a rise in the level of priority signifies a new packet.

30. Regarding claim 22, Ellis does not expressly disclose that the processor operates as state machine. However, Ellis discloses that the control block operates as a state machine (col. 7, lines 5-7). Ellis further discloses that the "control and protocol/seq blocks are brought to a known state

whenever the reset input is asserted" (col. 7, lines 1-2). Examiner takes official notice that state machines are a well-known way to implement program. Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to operate the processor as a state machine since state machines are a well-known way to implement a program.

Allowable Subject Matter

31. Claim 5 is allowed. The prior art does not disclose or fairly suggest step (d). Specifically, the prior art does not disclose or fairly suggest placing a queue identifier of a queue receiving a traffic stream that is interrupted into a memory stack, such that this identifier is retrieved after new data stream is completed in order to permit the system to resume inputting the interrupted data stream into the correct queue. Rather, the prior art suggests either selecting the appropriate queue based on identification information in the data stream, see Ellis et al. (USPN 5,497,371) col. 5, lines 1-7, or using a buffer dedicated only to receiving interrupted packets, i.e. a "preemptable packet buffer," see Calvignac et al. (USPN 5,557,608) col. 9, lines 25-30.

32. Claims 9 and 18 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims. The prior art does not disclose or fairly suggest including a length as part of the signaling added to distinguish between the boundaries interleaved packets. Rather, the prior art suggests distinguishing between the boundaries of interleaved packets using flags, see Ellis et al. (USPN 5,497,371) Fig. 3 and col. 5, lines 19-20, or using flags and a trailer, see Calvignac et al. (USPN 5,557,608) col. 5, lines 37-38.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Daniel J. Ryman whose telephone number is (571)272-3152. The examiner can normally be reached on Mon.-Fri. 8:00am-4:30pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Huy Vu can be reached on (571)272-3155. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Daniel J Ryman
Examiner
Art Unit 2616